

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number
WO 2004/029568 A1

(51) International Patent Classification⁷: **G01K 11/32**

University of Technology, 1 John Street, Hawthorn, Victoria 3122 (AU).

(21) International Application Number:
PCT/AU2003/001280

(74) Agent: **GRIFFITH HACK**; GPO Box 1285K, Level 3, 509 St Kilda Road, Melbourne, Victoria 3001 (AU).

(22) International Filing Date:
29 September 2003 (29.09.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2002951705 27 September 2002 (27.09.2002) AU

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **CRC FOR INTELLIGENT MANUFACTURING SYSTEMS & TECHNOLOGIES LTD** [AU/AU]; Corner Albert & Raglan Streets, Preston, Victoria 3072 (AU).

(72) Inventors; and

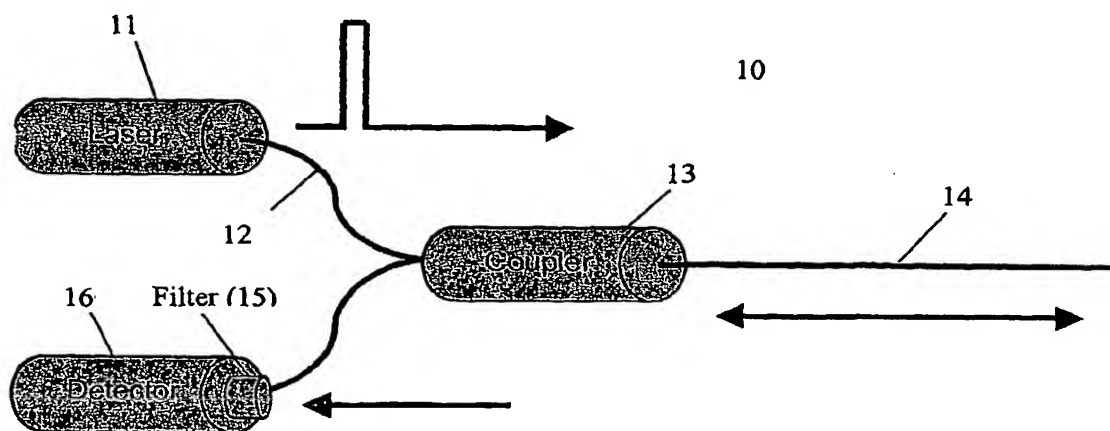
(75) Inventors/Applicants (*for US only*): **SEEBACHER, Peter, John** [AU/AU]; 28 Jackson Crescent, Pennant Hills, New South Wales 2120 (AU). **HOOK, Ian, Keith** [AU/AU]; 6 Mary Street, North Mead, New South Wales 2152 (AU). **STODDART, Paul, Randall** [ZA/AU]; C/o-Centre for Imaging and Applied Optics, Swinburne

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **DISTRIBUTED TEMPERATURE SENSOR USING OPTICAL REFLECTOMETRY**



(57) Abstract: A temperature sensing method in which pulses of optical radiation are launched by a laser diode (11) into an optical fibre (14) and optical radiation backscattered from the fibre is detected, the method comprising passing the backscattered radiation through a single optical filter (15) whereby a first signal is recorded at the anti-Stokes Raman wavelength from a signal launched by the laser diode in a laser mode and a second signal is recorded at the Rayleigh wavelength from a signal launched by the laser diode in a light emitting diode mode, and a comparison is made of the two signals to provide an indication of temperature.